

Restricting Trade in Resource Access: Consequences for Foreign Direct Investment in Seafood Processing

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Abstract. A global market has developed for access to fishery resources. Coastal nations compete with each other to supply fishing opportunities to distant water fleets; the latter vie with each other on the demand side. A consequence of this international trade in resource access is the current distribution of cooperative fishing arrangements. The market is not free of trade restrictions, however. Some nations, including the United States, participate on the demand side but, through denying fishing opportunities to foreigners, not on the supply side. One consequence of these restrictions appears to be foreign direct investment in the seafood processing facilities of some coastal countries. The situation is similar to the case of exporting countries that, faced with import tariffs, participate in «tariff hopping» by investing in the processing sector of the importing country. Similarly, distant-water nations may find it to their advantage to invest in seafood processing abroad if they are provided only limited opportunity to participate in the fishing activity. We explore this hypothesis as a possible explanation for the significant role being played in the U.S. seafood sector by, among others, Japanese companies.

Keywords. Foreign direct investment, seafood trade barriers

1. INTRODUCTION

In a seminal article, Munro (1985) argued that the various cooperative fishing arrangements that emerged following the extension of fisheries jurisdiction by most of the world's coastal nations could be viewed from the perspective of international trade. Distant water nations could be seen as «importers» of access rights in exchange for the processing -or other- services they provided the coastal nations. In a series of papers, beginning with a presentation at the 1988 IIFET conference, Queirolo and Johnston (1990), Johnston *et al* (1996) and Queirolo *et al* (1997) extended the Munro framework and argued that, indeed, an international market was developing in access to fishery resources.

This paper looks at the consequences of restrictions in that market. It hypothesizes that some of the investment that has occurred in the seafood processing sectors of coastal nations may be a consequence of such restrictions.

In particular, it argues that Japanese investment in the seafood processing industries of the United States is a response to those restrictions. A theoretical model is presented, along with some empirical evidence in support of the hypothesis. A more rigorous testing of the hypothesis must await the collection of a more complete data set, however.

In the next section the Queirolo *et al* argument is summarized. This is followed, first, by a brief examination of the literature that suggests how trade restrictions may stimulate foreign direct investment, and then by an extension of that perspective to consider the specifics of the Japan-U. S. relationship in the seafood industry.

2. THE MARKET FOR RESOURCE ACCESS

Following the extension of fisheries jurisdiction (EFJ) by

most coastal countries in the 1970s, many of those countries whose distant-water fleets had earlier fished in what became new EFJ zones elected to substitute fish imports for what they had previously harvested for themselves. This suggests that, at least in part, it may have been the open access nature of the ocean that had given these nations an apparent competitive advantage in supplying their own markets, an advantage that disappeared once «ownership» of the fish-rich parts of the ocean was transferred to coastal states. When being «first to the fishing grounds» was replaced by being «most successful at the bargaining table,» these distant-water fishing nations found themselves at a competitive disadvantage relative to other fishing nations, including the coastal nations themselves. Costs from the loss of access to fishery resources were minimized by substituting imports for domestic production. Examples of countries that selected this strategy are Germany, Poland, and Korea.

On the other hand, several distant-water countries, despite now having to bid on the rights to fish in formerly open-access waters, continued to maintain a presence in those fisheries, suggesting that they believed they continued to hold a competitive advantage in fish harvesting and processing. These countries were joined by others, including many coastal countries, which felt that transformation of the open-access fishery to one in which competition for access depended on willingness to pay for it, provided them with an economic opportunity to participate in the harvesting and processing of fish and shellfish. This, in effect, led to the appearance of many competing «demanders of access» to fishing grounds.

On the other side of the market lay, of course, the coastal nations. They became the suppliers in this emerging «market for access.» With so many nations involved, the market became - and continues to be - truly an international one. Because of the heterogeneity of the resources involved, the market is not a textbook example

of perfect competition. It is, however, characterized by many buyers and many sellers. A variety of contractual arrangements exist - called «cooperative fishing arrangements» (CFAs) by Clarke and Munro (1987, 1991) - reflecting different views of the future, properties of the fish resource, distances among nations, country-specific political considerations, and a variety of properties that have counterparts in other competitive markets.

What is the evidence? The U.S. Department of Commerce, National Marine Fisheries Service (NMFS), routinely compiles data on bilateral and multilateral cooperative fishing arrangements, as part of its responsibility to monitor world seafood trade. These data are published periodically by the agency¹, and reveal a highly diverse, dynamic, and competitive market for fisheries access.

These statistics document cooperative fishery development activities comprised of a variety of forms and durations. But all fundamentally involve CFAs between distant water fleets seeking access to raw material (fish stocks) and coastal nations willing to supply that access, through some combination of joint fishing, processing, and/or seafood marketing opportunities.

The list of participants in these CFAs provides an indication of the extent of this emerging access market. Over the period from late-1992 through mid-1996, for example, NMFS documented CFAs among more than 55 different nations. These CFAs included EFJ access granted to distant water fleets (both «fee» based and «non-fee» based agreements), joint venture fishing/processing operations, and cooperative arrangements for direct capital investment by the distant water nation in capacity (both fishing and processing) within the host coastal nation. More than 233 bilateral, or in some instances multilateral, combinations resulting in CFA relationships were documented during this period. This is not an exhaustive listing of CFAs, either, since it includes only agreements which have at least one partner from the «Pacific Rim» region.²

Perhaps not unexpectedly, given their traditional dominance of distant water fisheries, Japan is the single most frequently identified party to these CFAs, with Russia (or earlier, the U.S.S.R.) a very close second. The Republic of Korea, another of the pre-EFJ traditional distant water powers, ranks third, with a newly emerging China follow at some distance.

The complete list of CFA partners referenced in the NMFS report over this period reveals the «global» extent

of the fishery-resource access market. From Chile, Argentina, and Peru to South Africa, Angola, and Sierra Leone; Panama, St. Vincent, and the Grenadines; Iceland, the United Kingdom, and Spain; Libya, Saudi Arabia, and Iran; India, Pakistan, and Bangladesh; Indonesia, the Philippines, and Vietnam; Australia, Papua New Guinea, and New Zealand, CFAs reach nearly every ocean and create a dizzying array of potential product forms, marketing opportunities, and development possibilities.

Thus, it seems clear that an active market - one characterized by international trade - exists for access to the world's fishery resources. Like many international markets, however, this particular market confronts its share of trade barriers. In the next section we review the literature that deals with how barriers to international trade may lead to an alternative to trade: foreign direct investment (FDI), following a brief review of the literature that examines motivations for FDI. This discussion is a precursor to our argument that trade barriers in the resource access market may lie behind FDI in the seafood processing industries of the globe, and we use the case of Japanese investment in the United States to support that argument.

3. FOREIGN DIRECT INVESTMENT AND «TARIFF-HOPPING»

According to the United States Department of Agriculture's Economic Research Service, foreign direct investment is «the ownership of assets in an affiliate by a foreign firm for the purpose of exercising control over the use of those assets»(Henderson *et al*, 1996 pg. 67). Lin (1996) states that a firm, in its desire to control both competitive advantages and assets, will choose to carry out transactions within the company by establishing foreign affiliates through foreign direct investment rather than participate in the market place by selling its knowledge, skills, technologies, and/or exporting its products.

A commonly accepted method for classifying the factors involved in a firm's choice to invest abroad is the OLI method developed by Dunning(1977). This method breaks the factors into three categories: Ownership, Locational, Internalization. Ownership factors are those intangible characteristics in business operations such as marketability (e.g., brand name), technology and information, linkages(financial, political, and business), and operational (e.g., multi-national experience).

Locational factors are those costs a firm can reduce by locating within the host country. They include trade barriers (tariff and non-tariff barriers), adverse exchange rate shifts, loss of decision-making control, and income taxes. Last, internalization factors encompass various characteristics of firm operations. Included in this category are economies of scale, scope, and size; product differentiation, and an assortment of opportunity costs. Later studies, such as Ether(1994), refined the OLI

¹ See, for example, "The Latest Developments in Pacific Rim Fisheries", U.S. Department of Commerce, National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS).

² An equivalent report series on Atlantic fisheries was discontinued by U.S. Department of Commerce, in large part, due to budgetary considerations.

Table 1. Japanese imports of salmon (fresh and frozen)

Country of Origin	1976		1977		1978		1979		1980	
	Q	V	Q	V	Q	V	Q	V	Q	V
Republic of Korea	30 356	11,44	12 387	13,20	6 947	20,08	25 380	142 202	11 577	54,95
North Korea	536 228	462,75	661 890	1 012,73	1 807 760	3 070,48	1 392 095	3 046 788	1 673 891	2 385,00
Taiwan			30 508	95,6	5 194	4,52				
Iceland					27 960	52,11				
Norway	1 354	6,08	560	1,38	1 186	6,40	8 335	31 742	1735	23,28
Sweden					11 702	47,47				
France					181	1,01				
Spain					2 300	1,80				
Canada	321 769	1 331,85	3 705 891	16 981,45	7 052 744	44 500,84	4 726 911	27264,38	2 641 538	14 792,11
USA	2 378 979	8 942,18	14 883 496	70 757,40	40 860 648	221 026,72	48 103 159	234829,755	33 024 771	135 449,53
Trinidad					997	1,69				
Canary	1 980	0,75			2 360	1,36				
West Germany			27	0,89						
China	5 000	6,41	37 719	57,55						
United Kingdom			34	0,55						
Brazil			1 021	1,30						
USSR	404 910	499,05					439 174	1 055 781	1 990 644	4 204,50
Morocco									1 260	1,33
Panama	3 410	1,27								
Finland							50	1 378		
Mexico							12 811	109 827		
Totals	3 683 986	11 261,79	19 333 533	88 922,05	49 779 979	268 734,48	54 697 905	266 481 853	39 345 416	156 910,69

Source: Imports of Japan, Commodity by Country, various issues.

Q = kilograms

V = thousand \$ US

system by adding factors concerning the stage of development and the level of risk (Henderson, 1996, pg. 74).

Participating in FDI to avoid trade barriers is often labeled «tariff-hopping» and is the phenomenon under which an exporting country, faced with tariffs by its importing partner, moves its production resources to the importing country so that it can supply that country's market while avoiding the tariff. Ray (1991) tested the tariff-hopping hypothesis using 1979-87 data for ten manufacturing industries. He concluded that «a desire to circumvent current - but not potential - trade restrictions has motivated foreign direct investment» (Ray, 1991, pg. 62). Ray found a positive relationship between FDI and both tariff and non-tariff barriers for equity investment by Japan and for new plant and expansion investment for all countries. Helmberger and Schmitz (1970) provide one of the early analytical discussions of the issue, concluding that FDI may, in some circumstances, substitute for trade and, in others, complement it.

The «tariff-hopping» argument pertains primarily to the case of a country that faces trade restrictions on its opportunity to supply a foreign demand. In the case of the market for access to fish resources, the final demand may lie in the country that faces the trade restrictions. Consider Japan, for example. Here we have a country whose distant water fleets, prior to EFJ, harvested large volumes of salmon, crab, Alaska pollock and other species in the Pacific Ocean waters off Canada, the United States, and the former USSR. In fact, Japan harvested so much salmon that, in addition to supplying its own domestic market with product in the fresh form, it also supplied the European market with salmon in the canned form. Indeed, Japan was, at one time, one of the world's leading exporters of canned salmon (Johnston, 1988). At the same time, Japan was principal harvester of crab, cod and Alaska pollock from the Northern

Pacific, products destined primarily for the Japanese market itself. (Hirasawa, 1982; Kusakawa, 1982)

When, through EFJ, Japan lost access to the fishing grounds that supplied those species, it was expected that Japan would turn to the new «owners» for supplies, becoming an importer of the products that were produced from those species. For example, with Alaska pollock having its principal market in Japan as the primary ingredient in good quality surimi, the U.S. industry, having gained access to huge stocks of the species, anticipated that it would become the primary supplier of surimi to the Japanese markets. After all, as indicated above, Germany, Poland and other distant-water fishing nations had turned to imports after resource access had been denied to them. Indeed, the U.S. industry and the federal government launched an intensive, and successful, effort to reduce Japan's import tariffs and other restrictions that existed on surimi and surimi-based products at the time (Jensen, 1984). With these relatively low import restrictions and with the U.S. (together with Canada and the USSR) holding «not for sale» access to the major fish stocks, it was not unreasonable for the U.S. industry to anticipate large export opportunities in the lucrative Japanese market.

In fact, this happened. In some cases it happened rather quickly. Table 1 provides data on Japanese imports of salmon. Between 1976, the year the United States extended its fisheries jurisdiction, and 1980, Japanese imports of salmon rose from 3700 metric tons to over 39,000 metric tons, more than a ten-fold increase. By 1985 that figure had climbed to 116,000 metric tons (not shown in Table 1). Figure 1 depicts the decline of Japan's exports of canned salmon between 1967 and 1986. Clearly, Japan's role in an important seafood market changed dramatically with EFJ.



Figure 1. Real Value of Japan's Exports of Canned Salmon, 1967-1986. (*Million Yen, deflated by Japan's wholesale price index, 1975=100.) Source : Johnston (1988).

However, unlike the situation in many other countries, Japanese companies continued to believe that they held a competitive advantage in supplying the Japanese surimi market and, thus, facing a significant barrier to the importation of the services of the EFJ waters in which they formerly fished, adopted a strategy similar to that of «tariff-hopping.»

Figure 2 provides a framework we feel to be an appropriate, albeit highly simplified, picture of the situation, using Alaska pollock and surimi to illustrate the argument. In Figure 2a, $D_{J,S}$ represents the demand in Japan for surimi. We abstract from exchange rate complications by assuming 100 Japanese yen trade for \$1.00 (U.S.) throughout the analysis. It is a derived demand, since surimi is further processed into a variety of products consumed in Japanese households and restaurants (Kim, *et al*, 1990). To simplify the diagrams, without doing damage to the basic argument, we assume that surimi is processed via a Leontief production function, combining one unit of pollock with one unit of processing services to produce one unit of surimi.³ The input «processing services» is a catch-all input to include, labor, capital services, and the other ingredients used to produce surimi.

Figure 2b shows the supply of processing services in Japan, labeled $S_{J,P}$, and reflects the marginal costs of hiring additional labor, ingredients, etc. as quantities of processing services supplied to the surimi industry rise.

Curve $S_{J,AK}$ in Figure 2c depicts the supply of Alaska pollock to the Japanese fleet prior to EFJ. It is assumed to be vertical on the assumption that the fleet harvests as much as it can, as long as prices are above some minimum level (not shown). By vertically subtracting $S_{J,P}$ from $D_{J,S}$ we obtain $D_{J,AK}$, the derived demand by Japanese processors for Alaska pollock (Fig. 2c). Equilibrium prices are established at P_S , P_P , and P_{AK} for surimi and the two inputs.

³For further discussion of this framework, see Houck (1986, chapter 13) and Friedman (1962, pp 148-159.). In the case of surimi the fixed proportions argument is fairly reasonable. See (AFDF, 1987).

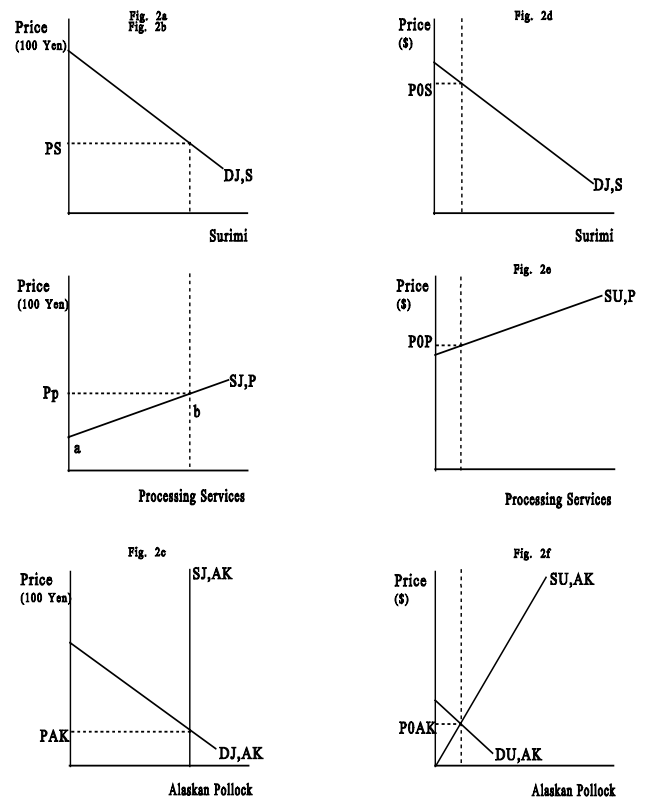


Figure 2. Trade, Surimi, and Alaska Pollock

When the U.S., Canada, and the USSR declared EFJ, Japan was no longer able to fish in the coastal waters of these countries.⁴ To reflect this, we move the «supply of pollock» curve from Figure 2c to Figure 2f, where it is now in the hands of the American fleet. Unlike the pre-EFJ situation, this curve has a positive slope, reflecting the fact that the American fleet considers surimi to be only one of the products that can be produced with Alaska pollock.⁵ The fleet will allocate its catch among the various processors according to prices paid: the greater the prices paid by surimi processors, the greater the amount of pollock that will be delivered to them.⁶ The curve labeled $S_{U,P}$ in Figure 2e is the supply of processing services to the surimi industry in the United States. It is drawn to lie above the corresponding curve in Fig. 2b under the assumption that, at least until recently, Japanese processors were able to produce high-quality surimi at a lower cost than were their American counterparts. This is part of what lay behind the claim

⁴In the case of the U.S. this did not occur immediately, at least for Alaska Pollock. A variety of joint venture arrangements were permitted until 1990, by which time the U.S. zone had become «Americanized.»

⁵Throughout the discussion we assume the supply curves of pollock to be of a short-run nature. A longer-run analysis would not differ dramatically from what we present here but would require that we address the open access question more specifically and provide a more accurate depiction of the population dynamics associated with the Alaska pollock fishery. The result would be a more complete, but not substantively different, analysis.

⁶See Herrmann *et al* (1996).

Table 2. Annual Expenditures, Quantities Purchased and Average Prices Paid by Japanese Households for Fish & Shellfish, Beef, Pork and Chicken, 1972-1994.

Year	Fresh Fish & Shellfish lg(100g)			Fresh Meat lg(100g)			Beef lg(100g)			Pork lg(100g)			Chicken lg(100g)		
	Exp.	Quan.	Price	Exp.	Quan.	Price	Exp.	Quan.	Price	Exp.	Quan.	Price	Exp.	Quan.	Price
1972	32 772	57 608	56,89	34 026	36 018	94,47	10 857	7 708	140,85	14 331	15 841	90,47	6 580	9 582	68,66
1973	35 300	54 752	64,47	41 149	37 512	109,69	12 951	7 051	183,67	17 649	17 361	101,66	7 981	10 232	78,00
1974	46 138	58 476	78,90	49 640	39 269	126,41	15 753	7 423	212,23	21 046	18 560	113,40	9 930	10 463	93,95
1975	54 569	60 436	90,29	58 561	39 730	147,40	18 566	7 784	238,50	25 233	18 216	138,52	11 394	11 121	102,45
1976	61 342	60 093	102,08	66 518	41 147	161,66	21 502	8 045	267,28	28 260	18 767	150,58	13 115	11 808	111,07
1977	64 713	56 455	114,63	68 731	42 593	161,37	22 883	8 390	272,74	28 469	19 450	146,37	13 520	12 195	110,87
1978	67 523	56 980	118,50	71 145	44 510	159,84	25 661	9 315	275,48	28 419	19 715	144,15	13 276	13 039	101,81
1979	69 178	55 790	124,00	72 094	46 077	156,46	26 813	9 425	284,49	28 017	20 368	137,55	13 505	13 864	97,41
1980	72 324	55 938	129,29	74 840	46 721	160,18	28 313	9 153	309,34	28 630	20 867	137,2	14 375	14 505	99,11
1981	73 199	54 136	135,21	76 409	45 352	168,48	29 171	9 410	309,99	29 116	19 785	147,16	14 641	14 061	104,13
1982	76 021	53 173	142,97	79 220	46 298	171,11	30 978	9 854	314,38	29 521	19 661	150,15	15 111	14 654	103,12
1983	74 503	53 501	139,26	77 683	44 963	172,77	30 426	9 687	314,08	29 202	19 028	153,47	14 606	14 280	102,28
1984	74 075	53 489	138,49	78 693	45 660	172,35	31 365	10 050	312,09	28 981	19 010	152,45	14 794	14 574	101,51
1985	75 481	52 564	143,60	78 321	46 247	169,36	31 324	9 819	319,04	27 296	18 421	148,18	14 242	14 504	98,19
1986	75 823	52 029	145,73	77 530	46 635	166,25	31 836	9 912	321,17	26 440	18 603	142,12	13 791	14 556	94,74
1987	76 373	50 403	151,52	76 399	46 650	163,77	33 181	10 424	318,33	25 000	18 233	137,11	13 037	14 432	90,34
1988	74 902	49 857	150,23	75 006	45 876	163,50	33 986	10 763	315,76	23 886	17 672	135,17	12 230	13 997	87,38
1989	75 448	49 011	153,94	75 481	45 345	166,46	34 444	10 728	321,05	24 048	17 644	136,29	12 052	13 575	88,78
1990	77 979	47 304	164,84	77 198	44 403	173,86	35 570	10 816	328,85	24 421	17 287	141,27	12 221	12 971	94,22
1991	80 949	47 517	170,36	78 549	44 431	176,79	36 779	11 347	324,12	24 136	16 841	143,32	12 530	12 857	97,46
1992	83 722	49 452	169,30	77 919	44 335	175,75	36 100	11 437	315,65	24 063	16 565	145,26	12 487	12 814	97,45
1993	81 128	49 938	162,46	74 142	44 588	166,28	34 101	11 767	289,80	22 922	16 461	139,25	11 800	12 637	93,38
1994	76 158	47 525	160,25	70 602	44 376	159,10	32 905	12 245	268,71	21 413	16 029	133,59	11 212	12 332	90,92

Source : Japan Statistics Bureau, Management and Coordination Agency. Annual Report on the Family Income and Expenditure Survey, 1994.

that the Japanese industry had a competitive advantage over the U.S. industry in the production of surimi. In fact several American firms began to process surimi shortly after EFJ.

Continuing with the assumption of a Leontief (fixed proportions) production function for surimi and assuming no transportation costs between the U.S. and Japan (again, for ease of analysis), we have the following post-EFJ equilibrium prices: P^0_S , P^0_P and P^0_{AK} . Because of the assumption of processing cost differences, prices in the surimi and processing services markets lie above their pre-EFJ counterparts. Prices to U.S. fishermen could lie above or below (or be equal to) those paid to Japanese fishermen, depending on the ex-vessel demand for other pollock to be converted to other product forms.

The quantity of surimi available in the Japanese market, all of which is imported, is also lower than was the case before EFJ. Thus, despite the lower prices, consumer surplus in Japan falls with EFJ. However, note that the producer surplus that existed in the processing sector prior to EFJ, area abP_P has now disappeared. One way for the Japanese processors to recapture at least a portion of this would be to purchase existing U.S. processing facilities or construct new ones. Doing so would substitute part or all of the $S_{U,P}$ curve by $S_{J,P}$. The result is that American fishermen would harvest fish in U.S. waters, deliver the catch to Japanese-owned processing facilities, with the resulting, processed product being exported to Japan. Assisting in this process is the relaxation of import restrictions on surimi, resulting from negotiations initiated by U.S. industry and government representatives in the 1980s.

Here, then, is the source of the Japanese investment in seafood processing in the United States. We know that such investment has occurred. However we do not know whether it is a response to EFJ, as hypothesized by this model, or if it is part of a broader Japanese strategy to invest in food processing abroad for one or more of the other reasons offered under the OLI framework. We explore that question in the following section.

4. JAPANESE INVESTMENT IN FOOD PROCESSING IN THE UNITED STATES

Japanese consumers, who are among the world's major buyers of seafood, have, in recent years, increased their consumption of meat and poultry products, especially during the 1970s. Table 2 demonstrates that home consumption of poultry rose throughout the 1970s, was relatively stable during the early 1980s and has been declining since the mid-1980s. Pork consumption has a similar pattern, except that its decline began earlier. Consumption of beef has increased over the entire period.

Seafood consumption, however, though relatively high, has been falling since the United States, Canada and the USSR extended their fisheries jurisdiction. The relatively large increase in seafood prices between 1972 and 1994 - an almost threefold increase in nominal terms (Table 2) - suggests that this consumption decline was driven more by supply reductions than by declining demand for seafood. With respect to beef, nominal prices in 1994 were almost identical to nominal prices in 1976, while per household consumption was higher in the more recent year by over fifty percent. It is unlikely, then, that the demand for beef fell over the period. The picture for pork and chicken is more cloudy. In both cases, nominal prices in 1994 were lower than their levels in the late 1970s - and so was consumption. On the other hand, during the years immediately following EFJ, prices were falling while consumption was rising.

This casual inspection of the data (which are highly aggregated) suggests that, at least for seafood and beef, there is a relatively strong demand in Japan and, at least during the late 1970s, it may have appeared to suppliers that demand for pork and poultry was also strong. With solid consumer interest in beef, pork, poultry and some seafood products, where could Japan turn to satisfy this demand? As a nation with a relatively small amount of land on which to raise livestock, it was recognized that imports would have to play an increasing role. What about FDI? The strong demand suggests that there were incentives for Japanese investors to participate in the food processing sectors of other countries - especially in

beef, pork and poultry processing, in addition to seafood.

If so, one would expect to find similar levels of FDI across these industries and, if this has been, in fact, the case, Japanese investment in seafood processing could be seen as a response to increased consumer demand, rather than an act of tariff-hopping. What does the evidence suggest? To date we have been successful in acquiring data and past studies from the United States only and, thus, are restricted to examining the question via comparing FDI investments by Japanese firms in the U.S. seafood industry with Japanese investment in the U.S. beef, pork and poultry sectors⁷. A 1980 study of «foreign investment in the U.S. food and agricultural system» (Krause, 1980) reports that, in 1974, there were four U.S. affiliates of Japanese companies in the «meat products» industry, which carries the Standard Industrial Classification (SIC) number 201 and could include poultry processing firms. There were 21 firms in the «other food and kindred products» classification (SIC 209). Seafood processing is included in the second category but so are several other industries. Thus, while this study provides valuable insights into the motivations for FDI, the data it provides do not permit a testing of the tariff-hopping hypothesis.

A U.S. Department of Commerce report documents foreign direct investment transactions between 1974 and 1983. Our count of investments made by Japanese companies in the meat and seafood processing sectors of the U.S. over that period indicates the following:

SIC Number	Industry Name	Number of Firms	Investment (\$ millions)
2011	Meat Packing Plants	0	0
2013	Sausages and Prepared Meats	0	0
209	Miscellaneous Food and Kindred Products	2	4.5 ⁸
2091	Canned and Cured Fish and Seafoods	3	23.5 ⁹
2092	Fresh or Frozen Prepared Fish	1	NR
2099	Food Preparations, not elsewhere classified	4	7.9 ¹⁰

⁷Some observers have expressed alarm about Japanese (and other foreign) investment in the United States. Lin (1996) asserts that «The United States has expressed increasing concerns about the steady increase of Japanese direct investment presence, centering on its impact on employment, trade, and growth....ownership presence might jeopardize economic sovereignty of the US.» We do not address this issue further in the present paper.

⁸This figure pertains to only one of the two transactions. The value of the second transaction was not reported. The U.S. affiliates in this category do not appear to be seafood firms.

⁹This figure pertains to only one of the three transactions. It should be mentioned that both this and a second transaction are identified as being acquisitions or mergers, while the third is an increase in equity. Thus, while all three represent Japanese investment, none represents construction of new facilities.

¹⁰ This figure pertains to only three of the four transactions. Only one of the transactions, with an investment value of \$2 million, is identified as involving a new plant. The other three were either acquisitions or mergers. The U.S. affiliates in this category do not appear to be seafood firms.

For each of the years 1989, 1990, and 1991 the United States Department of Commerce published data on the establishments of U.S. affiliates of foreign companies.

These data cannot be directly compared with those just presented because the latter pertain to entire firms, not just establishments, which, for the most part, are plants.

Nonetheless the figures tell a similar story. The data on the meat products and seafood processing industries appear in Table 3.

From the data presented above it seems clear that there has been limited investment by Japanese firms in U.S. meat and poultry processing facilities. Four U.S. affiliates of Japanese firms in the Meat Products industry are reported for 1974, none were added between then and 1983 and, by 1989, there were only three establishments belonging to such firms. None of these establishments was classified in the poultry processing industry. By 1991 there were seven Meat Products establishments, and none of the additional investment was in poultry processing establishments.

It is likely that, of the 21 firms reported in the «Other» category to be U.S. affiliates of Japanese firms in 1974, several of them were seafood processors. We base this statement on the more detailed discussion of the seafood sector that follows below. Investment in four firms occurred between 1974 and 1983 and, by 1989, there were 21 establishments. This number rose to 26 in 1990 and fell to 20 in 1991. It would appear that, by the late 1980s, Japanese companies were more heavily involved in the United States in seafood processing than in the processing of meat or poultry products.

So far we have been unsuccessful in locating data on Japanese investment in the food processing sectors for the period before 1974. This makes it difficult to determine if the investment that occurred in the U.S. meats and poultry sectors during that earlier period paralleled investment in the seafood sector. We can report that, according to Krause (1980) Japanese companies invested considerably in foreign industries in general because of having accumulated a large pool of foreign currencies (through restrictive trade policies) and because of a revaluation of the yen. This does not, however, explain why the U.S. meat products industry was selected (albeit at a relatively low level) and not the poultry processing sector. Perhaps the explanation lies in U.S. restrictions on investment, with differences across industries in the nature of import restrictions by Japan, and with the fact that poultry processing is less land-intensive than is meat processing, making the latter a more costly domestic industry in Japan. We are currently exploring these issues.

We next turn to a discussion of previous investigations of foreign investment in seafood processing, with particular reference to Alaska and we explore some of the data collected specifically to address this issue. A 1979 volume by Sullivan and Heggelund (1979) provides an

Table 3. Number and Employment of Japanese - Owned Establishments
in U.S. Meat, Poultry and Seafood Processing Industries, 1989-91.

SIC Code	Industry Names	# of Establishments			# of Employees		
		1989	1990	1991	1989	1990	1991
201	Meat Products	3	6	7	250-499	526	614
2011	Meat Packing Plants	1	2	3	100-249	100-249	250-499
2013	Sausage & Prepared Meats	2	4	4	100-249	250-499	250-499
2015	Poultry Slaughtering & Processing	0	0	0	0	0	0
209	Miscellaneous Food and Kindred Products	33	41	35	3152	3657	3478
2091	Canned & Cured Fish and Seafoods	3	3	1	500-999	250-499	250-499
2092	Fresh or FrozedPrepared Fish	18	23	19	2258	2726	2542
2098	Macaroni and Spaghetti	0	0	1	0	0	100-249
2099	Food Preparations, nec.	12	15	14	250-499	250-499	500-999

Source : U.S. Department of Commerce (1993, 1994, 1995)

excellent start.

In a detailed examination of Japanese investment in seafood processing and the fishing industry in Alaska, Sullivan and Heggelund (hereafter, HS) show that this investment appears to have begun in the mid 1960s. By the late 1970s while foreign investment in the entire U.S. fishing industry was relatively small, this was not the case for Alaska, where Japan had become importantly involved in seafood processing. Interest appears to have been primarily in salmon, crab, and herring - species for which the Japanese were virtually excluded from catching in the U.S. zone. What about the highly important Alaska pollock fishery for surimi? During the period before the U.S. and the USSR extended their respective fishing zones, the Japanese fleets had caught up to 2.5 million tons of Alaska pollock between the two zones; by 1978 the highest catch permitted was 1.2 million tons, a drop of 52 percent (Sullivan and Heggelund, 1979, p. 140). Between 1976 and 1978 total surimi production in Japan fell from 449,400 to 382,000 metric tons, a fall of 15 percent. (Ibid.). Further declines were anticipated.

The Japanese government reacted on several different fronts. First, increased government subsidies in the form of low-cost loans were given to processors as an incentive to improve surimi yields from Alaska pollock (this action was partially motivated by the declining size of the individual fish, according to SH, page 143) and to turn to alternative species (mackerel, sardines) for supplies. Second, the quota on imports of Alaska pollock products was relaxed.

The latter had the effect not only of encouraging the importation of surimi, most notably, from China and the USSR, but also of encouraging Japanese investment in surimi processing plants abroad, especially in the United States. (After all, import restrictions affect both imports from foreign producers and imports from foreign subsidies of Japanese firms.) But, in the case Alaska pollock there was a transition opportunity in the U.S. fishing zone. In particular following the declaration of the Magnuson Fishery Conservation and Management Act of 1976, a variety of relatively short-term arrangements were permitted, including joint U.S.- Japan fishing ventures. These have since been phased out but, at the time, may have reduced the pressure on the Japanese industry to invest in U.S. pollock processing

facilities to preserve access to the resource.

Nonetheless, such investment did eventually take place.

Was this motivated by «tariff hopping» alone? After all, as already mentioned, several other developments occurred during the late 1960s and the 1970s that generated interest in foreign direct investment by Japanese companies. These include the fact that restricted markets in Japan had built up foreign exchange reserves. This, together with a relaxing of the restrictions on overseas investment and a revaluation of the Japanese yen combined to satisfy a growing thirst for opportunities to invest abroad. According to Sullivan and Heggelund (1979, p.50), «These developments almost certainly had a great impact on the accelerated growth of Japanese fishing investment in the United States.»

SH provides a chronology of Japanese investments in the Alaska fisheries, beginning in 1965, although the principal species, as reported above, appear to be salmon, herring and tanner crab. SH argue that investment in the processing of these species occurred because of a growing demand in Japan for «specialty products» (for example, salmon and herring roe) from these species. Processing these «byproducts» in the U.S. was more cost-effective than doing so in Japan.

This argument appears reasonable but it should also not be forgotten that discussions were occurring in the U.S. - and elsewhere - about the merits of extending fishing jurisdiction. Furthermore, Japanese fishing for salmon off the west coasts of Canada and the United States were significantly reduced by the shifting westward of the «abstention line» to the east of which Japanese salmon fishing was prohibited. Thus, through both talk and action, the Japanese were being given the message that access to fish stocks was likely to be significantly reduced. They may have seen FDI as a way to generate «continued and assured access to resources» (Sullivan and Heggelund, 1979, p.166. Emphasis theirs.) In our judgment this is just another way of asserting the «tariff hopping» argument in the case where trade in an input is restricted - or, in this case precluded.

The SH chronology documents Japanese investment in the Alaska fisheries during the mid-1960s, with a hiatus between 1967 and 1972. During the 1970s considerable investment occurred, as indicated above and as confirmed

by Gorham and Orth (1978).. Despite the events of the time that favored Japanese investment in general, as just discussed, comparable investments in other U.S. food processing sectors do not appear to have occurred. There was clearly something about the fishery that made it particularly susceptible to this action. An observation by Sullivan and Heggelund (1979) may provide the answer.

According to them, «...Japanese investors... control the product processed at their joint venture establishments in the (Northeast Pacific). The long-term loans given to joint ventures by trading and fishery firms are usually provided with terms requiring repayment in kind.... This financial agreement hence reduces the local partner's freedom to obtain the highest possible market price...» (p. 54). It would appear that the Japanese firms that invest in Alaska-based seafood processing are primarily interested in access to the raw material to which they were denied access under the Magnuson Fishery and Conservation Act. Support for this is also provided by a United States General Accounting Office (1991) report (see pages 6 and 7 of that report).

What has happened since the early 1980s? Gray (1990), using survey results, reports that «...at least 23 percent of Alaska shore-based and off-shore seafood processors have some foreign ownership»(page 7). This figure includes investments from Japan, Canada, England, Norway, Denmark, Switzerland, Taiwan, and Korea, an increase in the number of countries with at least partial ownership of Alaska processing facilities in 1980. Nonetheless the author is «...uncertain if foreign ownership of Alaska's seafood processing industry has increased or decreased over the past decade.» (p.8). This is the case for Japanese ownership as well. But it seems reasonable to conclude that, whether Japanese investment in seafood processing in Alaska is rising or falling, it is still substantial. Furthermore it appears to be much larger than investment in the meat and poultry processing sectors. The evidence suggests that this is, in large part, a result of being denied the opportunity to purchase access rights to fish.

We recognize that our finding is also consistent with several alternative hypotheses, for example, that the rate of return in the seafood processing sector is simply higher than it is in other sectors, or that there are important institutional barriers to investment in these non-seafood sectors. It may also be that investment in the meat and poultry sectors of other countries has a higher payoff than does similar investment in United States. Thus, the best we can say is that, while we have not conducted a critical test of our «tariff-hopping hypothesis,» the evidence does not appear to refute it. A more detailed, systematic analysis of the relevant data is required before a critical test of the hypothesis can be conducted.

5. SUMMARY, CONCLUSIONS AND IMPLICATIONS

Following the global extension of fisheries jurisdiction by

coastal countries, an international market for resource access has developed. Like any international market, this one is subject to a variety of trade restrictions, including the preventing of distant water fleets from purchasing access opportunities. We hypothesize that these barriers at the harvest level - an input process - have stimulated interest in getting around these barriers, in a manner analogous to tariff-hopping, by foreign investment in the domestic processing capacity of coastal countries. This allows the distant water fleet to demonstrate its competitive advantage in the production of fish products, but at a level further down the market channel.

We provide some evidence in support of the hypothesis.

If more rigorous analysis confirms our findings we will be prompted to observe that coastal countries that do not permit trade in resource access may not wholly eliminate the presence of foreigners. If the latter have a competitive advantage in producing fish products, this may manifest itself in their involvement at other stages of the market channel. There is nothing inherently wrong with this but it may come as an unintended consequence of «nationalizing» a fishery.

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